

SACRED HEART MITIGATION

Fall 2020 Monitoring Report

USACE Permit No.: SAJ-1998-4720 IP-RVH

Permittee: Sacred Heart Hospital of Pensacola
C/o Mr. Patrick J. Madden – President
5151 north 9th Avenue
Pensacola, FL 32504

Responsible Party for Monitoring: Northwest Florida Water Management District
81 Water Management Drive
Havana, FL 32333

Date of Inspection: 11/10/2020

Summary

This project (Sacred Heart Mitigation) compensates for impacts to jurisdictional wetlands associated with construction of the Sacred Heart Hospital near the intersection of US 98 and Mack Bayou Road in Walton County. It consists of restoring 82 acres of hydric pine flatwoods within the Devils Swamp area of the Northwest Florida Water Management District (NFWFMD) Choctawhatchee River Water Management Area. The offsite mitigation area is located approximately 15 miles east of the impact along an unnamed dirt road east of the unincorporated community of Bunker (Figure 1). Prior to NFWFMD acquisition in 1992, the site had been converted to slash pine plantation.

The mitigation area is divided into two management polygons. Mitigation activities implemented-to-date include 1) baseline monitoring (November 2017), 2) prescribed fire (February 2018), 3) repeat panoramic photography (March 2018, September 2018, September 2019, October 2020), and 4) post-baseline quantitative vegetation monitoring (April 2018, March 2019, October 2019, November 2020).

Exotic and invasive plant species are not present. Thinning of tree density to less than 200 trees per acre, delayed because of widespread damage associated with Hurricane Michael (October 2018) and the unavailability at that time of logging contractors, will be completed by January 2021. Shrub cover was treated with herbicide in September 2019 with mixed results. Monitoring in 2020 determined that the shrub cover target of <5% is not being met (percent shrub cover ranged from 3% to 20% across vegetation transects, with an average shrub cover of 14.5%). Additional herbicide treatments will be necessary. Prescribed fire is planned for 2021.

Performance Standards

Standard	Status
Reduce tree density to less than 200 trees per acre.	In Progress—To be completed January 2021.
Reduce shrub cover to less than 5%.	Not Met—Shrub cover averages 14.5%. Additional herbicide treatments will be required to control shrub cover.
Implement prescribed fire on a 2 to 3-year cycle.	Met—Prescribed fire implemented in February 2018; 2 nd prescribed fire planned for 2021.
Conduct annual monitoring for a minimum of five years.	Met—Annual monitoring is being conducted.
Cover of Category I and II invasive exotic plant species, pursuant to the most current list established by the Florida Exotic Pest Plant Council at http://www.fleppc.org , less than 1%.	Met—Cover of Category I & II invasive exotic plant species less than 1%.

Quantitative Monitoring Methodology and Results

Percent vegetation cover was measured November 10, 2020 in 1 m² quadrats (10-foot intervals) along four randomly placed 150-foot transects (Figure 2). The percent cover for each species and bare ground was determined by adding all quadrat observations and dividing the total coverage by the cover of each species within each transect. This represents a modified Daubenmire cover scale where vegetation species statistics are used to determine percent cover of bare ground and plant species. Rooted shrub stem density was estimated by counting rooted stems within five 1 m² quadrats established at random.

Conclusions

Mitigation and monitoring are being implemented in accordance with the USACE-approved mitigation plan associated with SAJ-1998-4720 IP-RVH. Performance standards for implementation of prescribed fire, monitoring, and invasive exotic plant species cover are being met. Thinning of pines to less than 200 trees per acre will be completed in January 2021. Shrub cover, although reduced by herbicide treatment in September 2019, averages 14.5% and is above the performance standard of <5% cover. Additional herbicide treatments will be necessary to bring shrub cover into compliance with permit conditions.

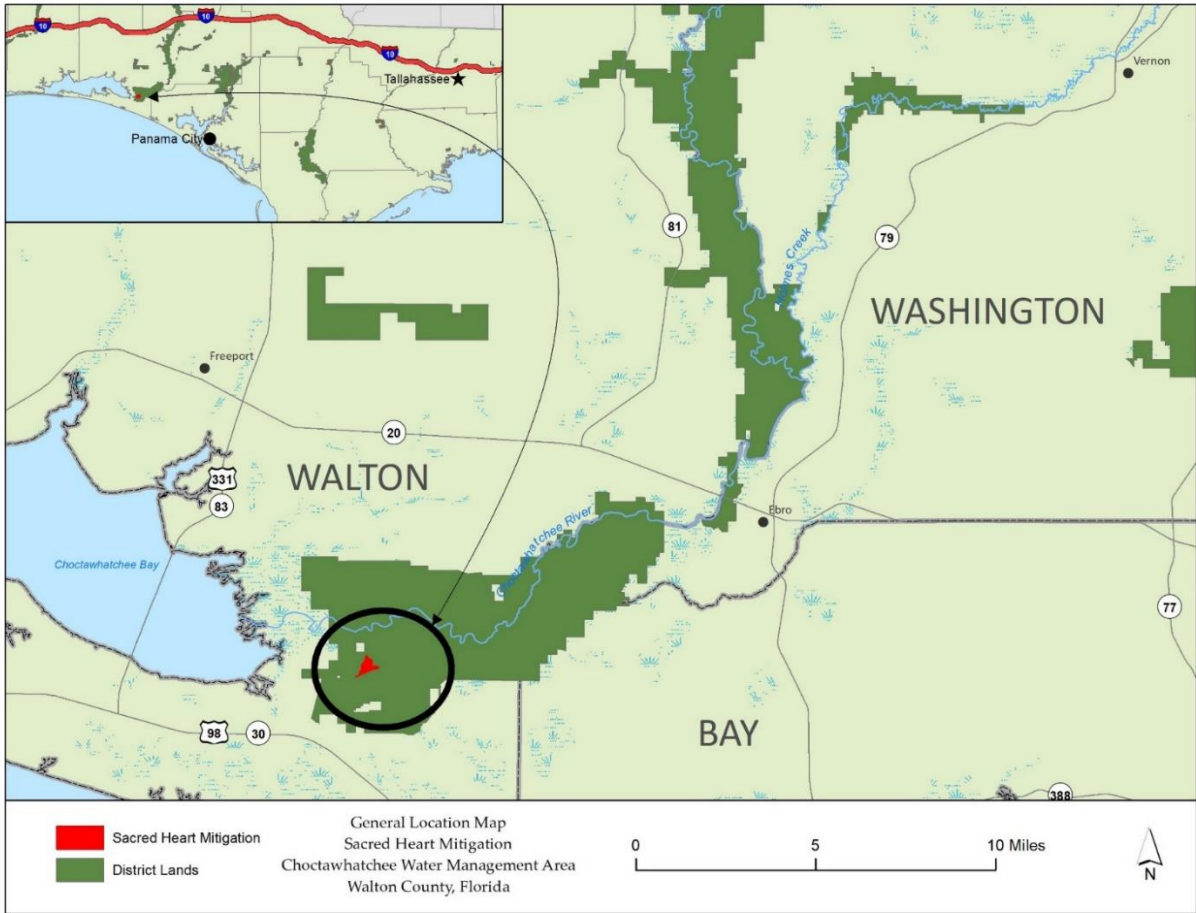


Figure 1. Location Map.

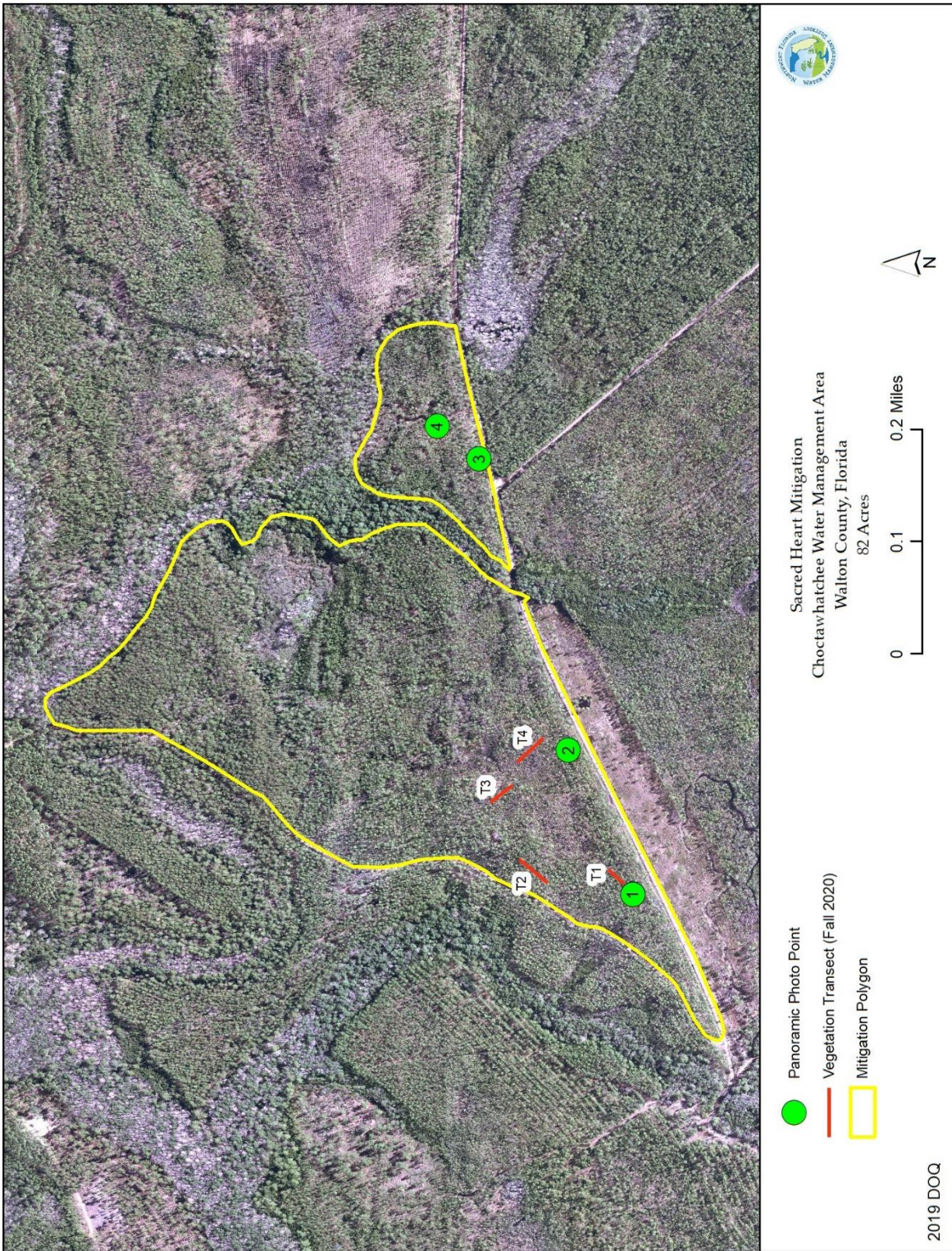


Figure 2. Fall 2020 Vegetation Transects

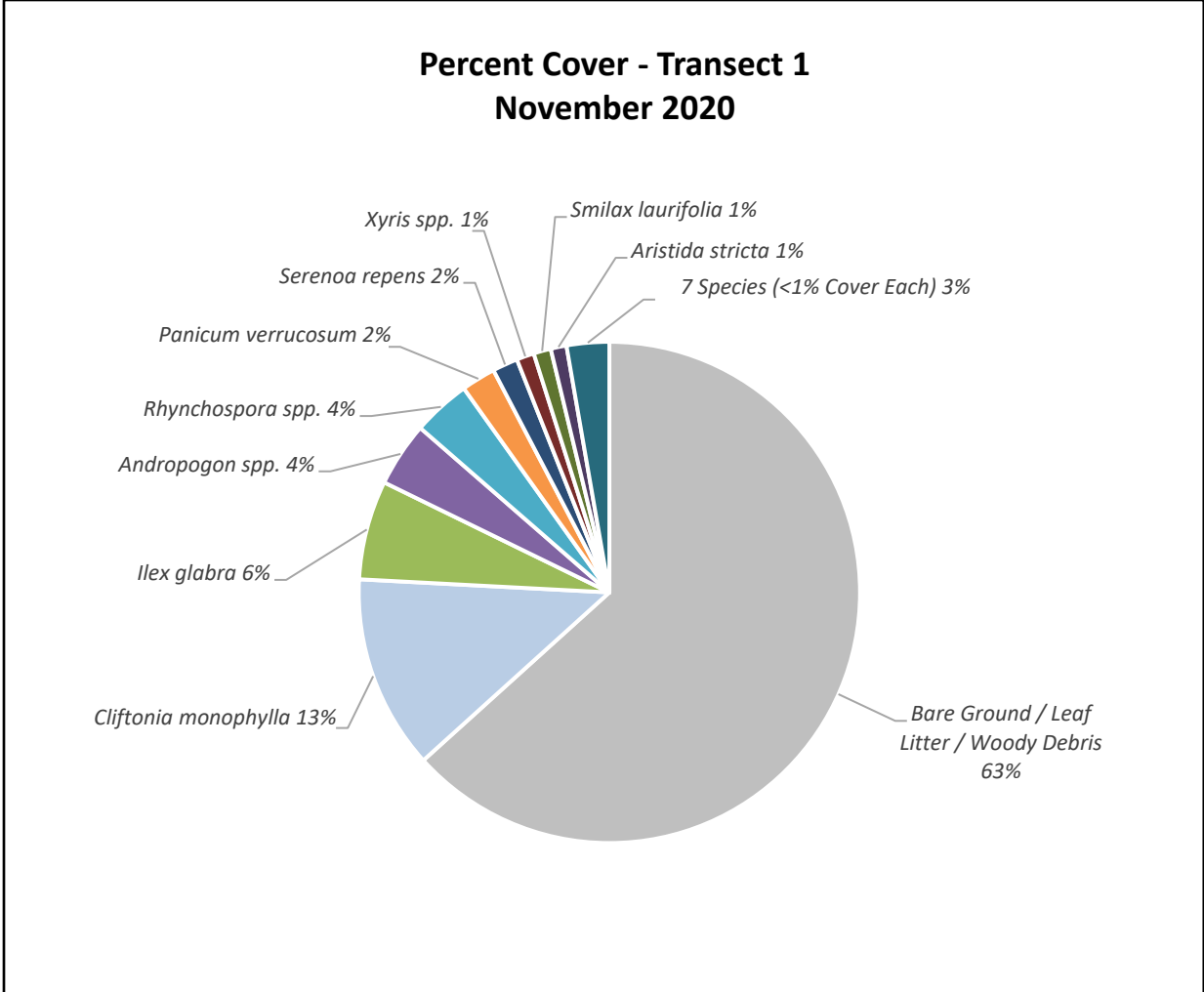


Figure 3. Sacred Heart Mitigation - Transect 1 (November 2020)

Table 1. Sacred Heart Mitigation - Transect 1 (November 2020)

Scientific Name	Common Name	Percent Cover Across Transect*
<i>Andropogon glomeratus</i>	Bushy bluestem	3.9
<i>Andropogon</i> spp.	Bluestem	0.3
<i>Aristida stricta</i>	Wiregrass	1.0
<i>Aronia arbutifolia</i>	Red chokeberry	0.1
Bare Ground / Leaf Litter / Woody Debris	Bare Ground / Leaf Litter / Woody Debris	63.3
<i>Carex verrucosa</i>	Warty sedge	0.6
<i>Cliftonia monophylla</i>	Black titi	12.5
<i>Dichanthelium aciculare</i>	Needleleaf witchgrass	0.2
<i>Ilex glabra</i>	Gallberry	6.4
<i>Lachnocaulon minus</i>	Small's bogbutton	0.1
<i>Lycopodiella</i> spp.	Clubmoss	0.5
<i>Panicum verrucosum</i>	Warty panicgrass	2.2
<i>Paspalum</i> spp.	Crowngrass	0.5
<i>Pinus elliottii</i>	Slash pine	0.8
<i>Rhynchospora plumosa</i>	Plumed beaksedge	1.6
<i>Rhynchospora</i> spp.	Beaksedge	2.2
<i>Serenoa repens</i>	Saw palmetto	1.6
<i>Smilax laurifolia</i>	Greenbrier	1.1
<i>Xyris</i> spp.	Yelloweyed grass	1.1
		100.0

*Because of rounding, percentages may not add up to exactly 100%.

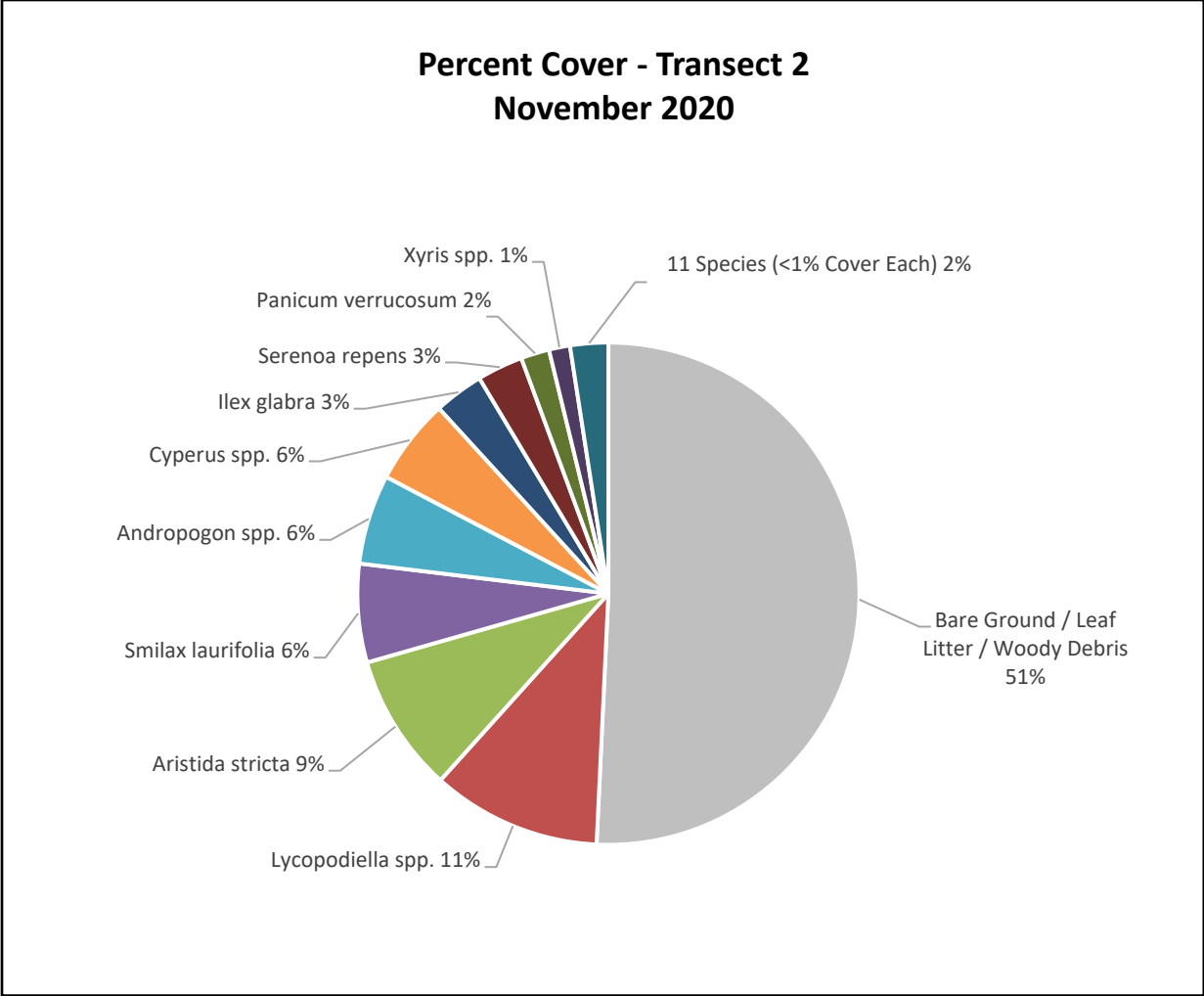


Figure 4. Sacred Heart Mitigation - Transect 2 (November 2020)

Table 2. Sacred Heart Mitigation - Transect 2 (November 2020)

Scientific Name	Common Name	Percent Cover Across Transect*
<i>Andropogon glomeratus</i>	Bushy bluestem	0.3
<i>Andropogon</i> spp.	Bluestem	5.5
<i>Aristida stricta</i>	Wiregrass	8.9
Bare Ground / Leaf Litter / Woody Debris	Bare Ground / Leaf Litter / Woody Debris	50.8
<i>Cliftonia monophylla</i>	Black titi	0.4
<i>Cyperus</i> spp.	Flatsedge	5.5
<i>Dichanthelium</i> spp.	Witchgrass	0.1
<i>Eriocaulon decangulare</i>	Tenangle pipewort	0.3
<i>Ilex glabra</i>	Gallberry	3.2
<i>Ilex</i> spp.	Holly	0.0
<i>Lachnocaulon anceps</i>	Whitehead bogbutton	0.1
<i>Lachnocaulon</i> spp.	Bogbutton	0.1
<i>Lycopodiella</i> spp.	Clubmoss	10.9
<i>Panicum verrucosum</i>	Warty panicgrass	1.8
<i>Pinus elliotii</i>	Slash pine	0.2
<i>Quercus</i> spp.	Oak	0.2
<i>Rhynchospora</i> spp.	Beaksedge	0.2
<i>Serenoa repens</i>	Saw palmetto	3.0
<i>Smilax laurifolia</i>	Greenbrier	6.3
Unknown	Unknown	0.7
<i>Vaccinium</i> spp.	Blueberry	0.1
<i>Xyris</i> spp.	Yelloweyed grass	1.4
		100.0

*Because of rounding, percentages may not add up to exactly 100%.

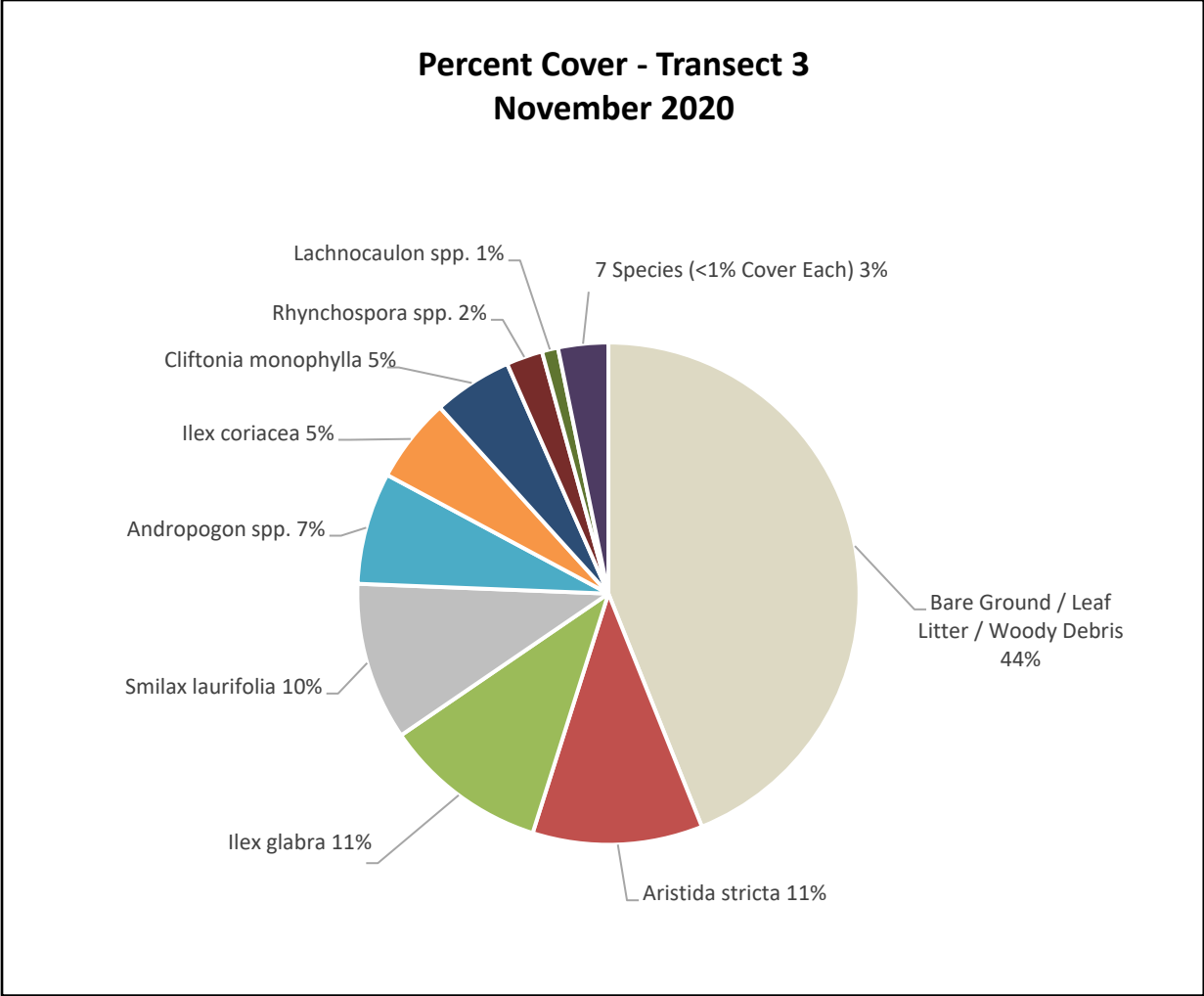


Figure 5. Sacred Heart Mitigation - Transect 3 (November 2020)

Table 3. Sacred Heart Mitigation - Transect 3 (November 2020)

Scientific Name	Common Name	Percent Cover Across Transect*
Andropogon spp.	Bluestem	7.2
Aristida stricta	Wiregrass	11.0
Bare Ground / Leaf Litter / Woody Debris	Bare Ground / Leaf Litter / Woody Debris	43.9
Cliftonia monophylla	Black titi	5.1
Cyperus spp.	Flatsedge	0.8
Dichanthelium spp.	Witchgrass	0.6
Eriocaulon spp.	Pipewort	0.7
Ilex coriacea	Sweet gallberry	5.5
Ilex glabra	Gallberry	10.6
Lachnanthes caroliniana	Carolina redroot	0.1
Lachnocaulon spp.	Bogbutton	1.0
Panicum verrucosum	Warty panicgrass	0.3
Pinus elliottii	Slash pine	0.3
Rhynchospora spp.	Beaksedge	2.3
Serenoa repens	Saw palmetto	0.5
Smilax laurifolia	Greenbrier	10.2
		100.0

*Because of rounding, percentages may not add up to exactly 100%.

**Percent Cover - Transect 4
November 2020**

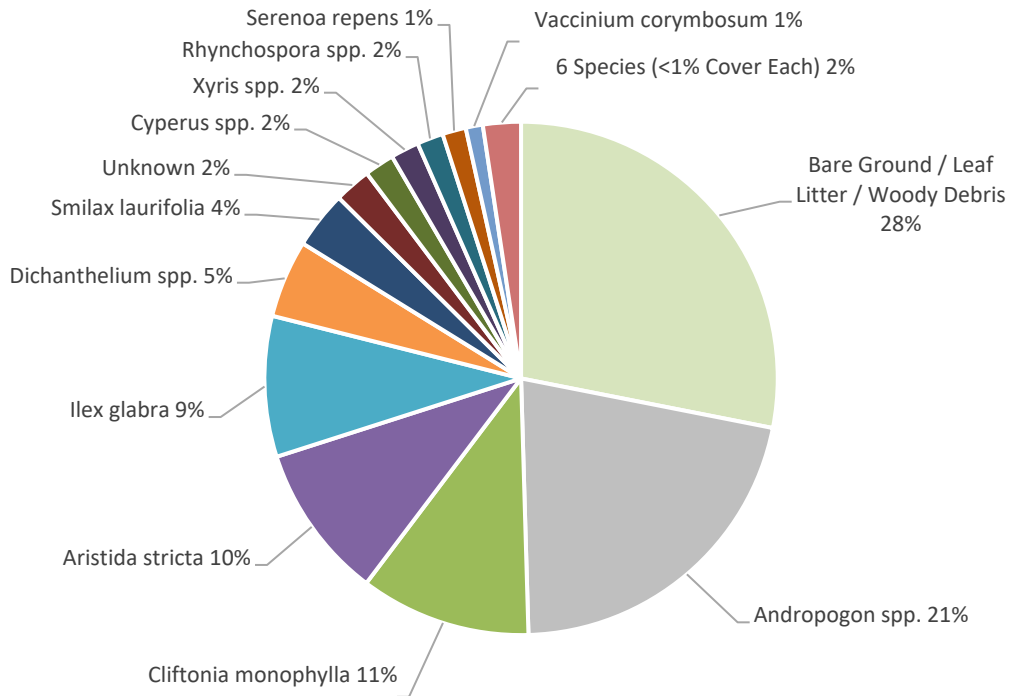


Figure 6. Sacred Heart Mitigation - Transect 4 (November 2020)

Table 4. Sacred Heart Mitigation - Transect 4 (November 2020)

Scientific Name	Common Name	Percent Cover Across Transect*
Andropogon spp.	Bluestem	21.4
Aristida stricta	Wiregrass	9.8
Bare Ground / Leaf Litter / Woody Debris	Bare Ground / Leaf Litter / Woody Debris	28.1
Cliftonia monophylla	Black titi	10.8
Cyperus spp.	Flatsedge	1.9
Dichanthelium spp.	Witchgrass	4.9
Eriocaulon spp.	Pipewort	0.5
Eubotrys racemosus	Swamp doghobble	0.3
Hypericum spp.	St. John's wort	0.1
Ilex glabra	Gallberry	8.9
Lachnocaulon spp.	Bogbutton	0.6
Lycopodiella spp.	Clubmoss	0.6
Pinus elliottii	Slash pine	0.3
Rhynchospora spp.	Beaksedge	1.7
Serenoa repens	Saw palmetto	1.5
Smilax laurifolia	Greenbrier	3.6
Unknown	Unknown	2.3
Vaccinium corymbosum	Highbush blueberry	1.1
Xyris spp.	Yelloweyed grass	1.8
		100.0

*Because of rounding, percentages may not add up to exactly 100%.

Table 5. Sacred Heart Mitigation - Rooted Shrub Stem Density Quadrats (November 2020)

Shrub Quadrat	Shrub Stems per m²
1	14
2	8
3	2
4	16
5	19
AVG Stem per m ²	11.8

Panoramic Monitoring Photos

Photo Point 1 (Hydric Pine Flatwoods Restoration)



Sacred Heart Mitigation Photo Point 1: 3/8/2018



Sacred Heart Mitigation Photo Point 1: 9/18/2018



Sacred Heart Mitigation Photo Point 1: 9/26/2019



Sacred Heart Mitigation Photo Point 1: 10/30/2020

**Photo Point 2
(Hydric Pine Flatwoods Restoration)**



Sacred Heart Mitigation Photo Point 2: 3/8/2018



Sacred Heart Mitigation Photo Point 2: 9/18/2018



Sacred Heart Mitigation Photo Point 2: 9/26/2019



Sacred Heart Mitigation Photo Point 2: 10/30/2020

**Photo Point 3
(Hydric Pine Flatwoods Restoration)**



Sacred Heart Mitigation Photo Point 3: 3/8/2018



Sacred Heart Mitigation Photo Point 3: 9/18/2018



Sacred Heart Mitigation Photo Point 3: 9/26/2019



Sacred Heart Mitigation Photo Point 3: 10/30/2020

**Photo Point 4
(Hydric Pine Flatwoods Restoration)**



Sacred Heart Mitigation Photo Point 4: 3/8/2018



Sacred Heart Mitigation Photo Point 4: 9/18/2018



Sacred Heart Mitigation Photo Point 4: 9/26/2019



Sacred Heart Mitigation Photo Point 4: 10/30/2020